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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,435	08/01/2000	Hwai-Tzuu Tai	81346JDL	5694

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EXAMINER	
THOMPSON, JAMES A	

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2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/630,435	TAI ET AL.	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 01 August 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "425" of figure 19. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashi (US Patent 5,790,282).

Claims 8 and 9 are dependent upon different dependent claims, but contain the same subject matter. Therefore, claims 8 and 9 are discussed together.

Claims 10 and 11 are dependent upon different dependent claims, but contain essentially the same subject matter. Therefore, claims 10 and 11 are discussed together.

Regarding claim 1: Hayashi discloses an image processing method comprising providing a first signal representing color separation continuous tone gray level image data of pixels (column 4, lines 12-21 of Hayashi).

Said method further comprises providing an operator adjustable color tweaking input data second signal (column 5, lines 10-17 of Hayashi) representing an adjustment in color saturation (column 5, lines 29-31 of Hayashi).

Said method further comprises, in response to the first and second signals, providing a third signal that represents an adjustment in color saturation in accordance with the operator adjustable color tweaking input (column 6, lines 33-40 of Hayashi). A saturation adjustment factor (β) is used in the processing of the image data to adjust the saturation (column 6, lines 33-35 of Hayashi). After saturation adjustment, the color components of the image data are altered to new values (column 8, lines 37-49 of Hayashi).

Said method further comprises subjecting data represented by the third signal to a halftone process to generate halftone rendered gray level data values for the pixels (column 13, lines 56-60 of Hayashi). The saturation adjustment information is obtained and used to alter the primary color values (column 13, lines 56-60 of Hayashi), said primary colors being the primary colors used in the halftone printing process (figure 2(48,3) and column 5, lines 4-6 of Hayashi).

Regarding claim 2: Hayashi discloses subjecting data represented by the third signal to a first halftone process (figure 2(46) and column 4, lines 63-67 of Hayashi) and a second halftone process (figure 2(47) and column 4, line 67 to column 5, line 3 of

Hayashi), and then blending the respective outputs from said first and second halftone processes (figure 2(48) and column 5, lines 3-6 of Hayashi). The image data of said third signal is saturation adjusted by the color correction circuit (figure 2(43) and column 5, lines 18-20 of Hayashi). Said image data is then sent through two halftone processing devices. Said devices are the image quality correction circuit (figure 2(46) and column 4, lines 63-67 of Hayashi) and the gradation adjustment circuit (figure 2(47) and column 4, line 67 to column 5, line 3 of Hayashi). Since the CMYK halftone data is processed by passing said CMYK halftone data successively through said image quality correction circuit and said gradation adjustment circuit, said CMYK halftone data is effectively blended since factors from both operations have adjusted said CMYK halftone data before being sent to the output processor (figure 2(48) and column 5, lines 3-6 of Hayashi).

Regarding claim 3: Hayashi discloses third signals representing adjustment in color saturation in accordance with the operator adjustable color tweaking inputs (column 5, lines 10-17 of Hayashi). β is used to adjust the image data with respect to color saturation (column 6, lines 16-22 of Hayashi) and can be adjusted by an operator (column 5, lines 29-31 of Hayashi). The color tweaking is performed based on the inputs of plural neighboring pixels since the data is based on minimum and maximum image data (column 6, lines 2-16 of Hayashi), which would inherently require an area of pixels.

The image quality correction circuit (figure 2(46) of Hayashi) and the gradation adjustment processor (figure 2(47) of Hayashi) each process the halftone data before

said halftone data is output (column 4, line 64 to column 5, line 6 of Hayashi). The factors by which said halftone data is altered as said halftone data passes through said image quality correction circuit and said gradation adjustment processor are essentially the blending coefficients. Said blending coefficients are determined by factors such as how much outline emphasis or how much image softening is desired (column 4, lines 65-67 of Hayashi). Therefore, said third signals are examined for determination of blending coefficients and in the step of blending are obtained in accordance with respective blending coefficients.

Regarding claims 8 and 9: Hayashi discloses that the first (column 4, lines 12-14 of Hayashi) and second signals (column 5, lines 29-34 of Hayashi) are input into a lookup table. The first signal, which corresponds to the image data, is stored in RAM (column 5, lines 18-25 of Hayashi), said RAM controlled by the CPU (column 5, lines 7-9 of Hayashi). Said CPU centrally controls the inputs and the operations of the system (column 5, lines 7-9 of Hayashi). Said second signal is a variable (β) that designates the level of saturation adjustment (column 6, lines 33-36 of Hayashi) In order to process the image data with respect to β, the variable β must inherently be stored in memory. β would be stored in RAM since the CPU controls the operations of the image processor (column 5, lines 7-9 of Hayashi). Storing said first and second signals in RAM is essentially the same as storing said first and second signals in a lookup table since each element of said first and second signals must be addressed by a specific RAM memory address in order to be properly accessed.

Regarding claims 10 and 11: Hayashi discloses that image data is recorded on an electrostatographic recording surface (column 3, lines 35-54 of Hayashi) as a color separation image (column 3, lines 33-34 and lines 60-67 of Hayashi), and plural color separation images are recorded and eventually transferred to a receiver sheet in superposed registered relationship (column 3, lines 54-59 of Hayashi).

Further regarding claim 11, Hayashi discloses that said recording and said transferring are performed to form a process color image (column 3, lines 60-67 of Hayashi).

Regarding claim 12: Hayashi discloses an image processing system (figure 2 of Hayashi) comprising a lookup table (RAM) (column 5, lines 18-25 of Hayashi) that stores image data suited to adjust color saturation of an input image (column 4, lines 34-40 of Hayashi) in accordance with a personal preference of an operator (column 5, lines 10-17 of Hayashi). Said image processing system stores the image data in RAM (column 5, lines 18-25 of Hayashi), said RAM controlled by the CPU (column 5, lines 7-9 of Hayashi). Accessing data from said RAM is essentially the same as accessing from a lookup table since each element of said image data must be addressed by a specific RAM memory address in order to be properly accessed.

Said system further comprises a first input (figure 2(FIFO between 41 and 42) of Hayashi) for providing continuous tone gray level image data of pixels forming a part of a color separation image (column 4, lines 18-24 of Hayashi). The input image is judged based on color separation data, specifically for the color density of cyan, magenta and yellow (column 4, lines 18-21 of Hayashi). Said color separation data is passed through

the FIFO between 41 and 42 of figure 2 of Hayashi to the rest of the system (column 4, lines 22-24 of Hayashi).

Said system further comprises a second input (figure 2(10) of Hayashi) for providing a color tweaking input (β) by an operator representing an adjustment to color saturation (column 5, lines 29-34 of Hayashi) in accordance with a personal preference of the operator (figure 2(10) and column 5, lines 10-17 of Hayashi).

Hayashi further discloses that said lookup table (RAM) is responsive to said first input (column 4, lines 12-14 of Hayashi) and said second input (column 5, lines 29-34 of Hayashi) to provide image data adjusted in color saturation for the pixels (column 4, lines 22-32 of Hayashi) in accordance with the preference as represented by the color tweaking input (column 5, lines 29-34 of Hayashi). The RAM, controlled by the CPU (column 5, lines 7-9 of Hayashi), stores the image data modified by the color correction circuit (column 5, lines 18-25 of Hayashi). Said color correction circuit (figure 2(43) of Hayashi) performs the saturation adjustment (column 5, lines 18-20 of Hayashi), the result of which is stored in the RAM (column 5, lines 20-25 of Hayashi).

Said system further comprises a processing device (figure 2(47) of Hayashi) that subjects the adjusted image data to render the adjusted data in accordance with a halftone algorithm (column 5, lines 1-6 of Hayashi).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (US Patent 5,790,282) in view of Miller (US Patent 5,731,823).

Claims 4 and 5 are dependent upon different dependent claims, but contain the same subject matter. Therefore, claims 4 and 5 are discussed together.

Regarding claims 4 and 5: Hayashi discloses the step of modifying the output of the blending operation into a binary image file. After the image data is processed, said image data is sent to the output control circuit, which then generates the signals needed to output said image data (column 5, lines 1-6 of Hayashi). In order to output said image data after processing, the creation of a binary image file for the output in some form, whether on a hard drive, in RAM, *et cetera*, is inherently required. Otherwise, there would no longer be any data to access for the purpose of output. Hayashi does not disclose expressly subjecting the binary image file to an edge enhancement process to reduce jaggedness in the image.

Miller discloses subjecting the binary image file to an edge enhancement process to reduce jaggedness in the image (column 9, lines 50-52 of Miller).

Hayashi and Miller are combinable because they are from the same field of endeavor, namely halftoning and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enhance the edges in the binary image file, thus reducing the jaggedness in the image. The motivation for doing so would have been to enhance the edge definition in the image (column 9, lines

51-52 of Miller). Therefore, it would have been obvious to combine Miller with Hayashi to obtain the invention as specified in claims 4 and 5.

Regarding claim 6: Hayashi discloses color tweaking image data (column 5, lines 52-57 of Hayashi). Hayashi does not disclose expressly modifying image data subsequent to color tweaking to an edge enhancement process to reduce jaggedness in the image.

Miller discloses modifying image data by edge enhancement process to reduce jaggedness in the image (figure 3a(92) and column 7, lines 55-57 of Miller). Edge enhancement is performed before many of the other operations (figure 3a(108) and column 8, lines 54-67 of Miller), such as color adjustment (or "tweaking") (column 8, lines 64-67 of Miller).

Hayashi and Miller are combinable because they are from the same field of endeavor, namely halftoning and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enhance the edges in the image data, thus reducing the jaggedness, prior to color tweaking. The motivation for doing so would have been to adjust for the attributes of a particular printing device (column 8, lines 62-64 of Miller).

Regarding claim 7: Hayashi discloses color tweaking image data (column 5, lines 52-57 of Hayashi). Furthermore, it is inherent that said image data is in the form of a binary image data file. In order to manipulate said image data, the creation of a binary image file for the output in some form, whether on a hard drive, in RAM, *et cetera*, is

inherently required. Otherwise, there would no longer be any data to access by a computer or other digital device.

Hayashi does not disclose expressly modifying image data subsequent to color tweaking and subjecting said image data to an edge enhancement process to reduce jaggedness in the image.

Miller discloses modifying image data by edge enhancement process to reduce jaggedness in the image (figure 3a(92) and column 7, lines 55-57 of Miller). Edge enhancement is performed before many of the other operations (figure 3a(108) and column 8, lines 54-67 of Miller), such as color adjustment (or "tweaking") (column 8, lines 64-67 of Miller).

Hayashi and Miller are combinable because they are from the same field of endeavor, namely halftoning and image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enhance the edges in the image data, thus reducing the jaggedness, prior to color tweaking. The motivation for doing so would have been to adjust for the attributes of a particular printing device (column 8, lines 62-64 of Miller).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mathew W. Hernandez, US Patent 5,860,047, January 12, 1999.

Shimizu et al., US Patent 5,844,688, December 1, 1998.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
February 6, 2004

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